From:
 R4LIMS

 To:
 Berry, Chuck

Cc: Turner, Nardina; Lkrebs@otie.com; Saskowski, Ronald; Hendel, Jeffrey; Aker, Sandra

Subject: R4 LIMS Results: Project 19-0198, E191407 PHYSP TMTL 04 23 19 1258

**Date:** Tuesday, April 23, 2019 1:16:20 PM

Attachments: E191407 PHYSP TMTL FINAL 04 23 19 1258.PDF

E191407 PHYSP TMTL FINAL 04 23 19 1258 - 19-0198 - ELM STREET LEAD 04-23-2019.GAN000407160.Dat

On Tuesday, April 23, 2019, results for the following were released by the Region 4 Laboratory:

### Analyses:

Physical Properties (PHYSP)
Total Metals (TMTL)

Project Number: <u>19-0198</u> Project Name: <u>Elm Street Lead</u>

City: Atlanta County: Fulton State: GA

# These results were reported by:

Jeffrey Hendel ( E-mail: <u>Hendel.Jeffrey@epa.gov</u> )

If you have questions concerning the laboratory results, please feel free to contact the laboratory personnel shown above as having reported the data. We also encourage you to provide feedback to the Region 4 laboratory by filling out our online (*EPA internal network only*) <u>Customer Survey Form</u>.

## These results are for the following Sample Type(s):

Soil (Surface Soil)

### PDF DATA RESULTS REPORT FILE ATTACHMENT:

An Adobe Acrobat PDF file is attached to this message that contains final results for the analyses as indicated in the data report.

#### DATA EXPORT FILE ATTACHMENT:

If attached, data export files will be tab delimited ASCII text files contained in a file that has been formatted using the ZIP archiving format (.Dat extension). Please consult your local computer support personnel if you have problems extracting these files. If you have questions about the data file formats and the information contained in these files, or if you would like to request export files for previously reported data, use the contact information shown below to contact the appropriate person with your concerns. To generate export files for previously reported data we'll need the name of the PDF report file that was attached to the original transmittal message.

For questions concerning this message and attachments, or any other LIMS or data reporting issues, please call the SESD PC Hotline at 706-355-8825 or send an email to <a href="mailto:r4lims@epa.gov">r4lims@epa.gov</a>.

## SAMPLE DISPOSAL POLICY:

Due to limited space for long term sample storage, ASB's policy is to dispose of samples on a periodic schedule. Air samples collected in summa canisters will be disposed of 30 days following the issuance of this report. All other sample media including original samples, sample extracts and or digestates will be disposed of, in accordance with applicable regulations, 60 days from the date of this report.

This sample disposal policy does not apply to criminal samples which are held until the laboratory is notified by the criminal investigators that case development and litigation are complete.

These samples may be held in the laboratory's custody for a longer period of time. If samples require storage beyond the 60-day period, please contact the Sample Control Coordinator by e-mail at R4SampleCustody@epa.gov.

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Region 4 Science and Ecosystem Support Division 980 College Station Road, Athens, Georgia 30605-2700 D.A.R.T. Id: 19-0198

Project: 19-0198, Elm Street Lead - Reported by Jeffrey Hendel

### **April 23, 2019**

#### 4SESD-ASB

### **MEMORANDUM**

**SUBJECT:** FINAL Analytical Report

Project: 19-0198, Elm Street Lead

**FROM:** Jeffrey Hendel

ASB Inorganic Chemistry Section Chief

THRU: Sandra Aker, Chief

Analytical Services Branch

TO: Chuck Berry

Attached are the final results for the analytical groups listed below. These analyses were performed in accordance with the Analytical Services Branch's (ASB) Laboratory Operations and Quality Assurance Manual (ASB LOQAM) found at www.epa.gov/region4/sesd/asbsop. Any unique project data quality objectives specified in writing by the data requestor have also been incorporated into the data unless otherwise noted in the Report Narrative. Chemistry data have been verified based on the ASB LOQAM specifications and have been qualified by this laboratory if the applicable quality control criteria were not met. Verification is defined in Section 5.2 of the ASB LOQAM. For a listing of specific data qualifiers and explanations, please refer to the Data Qualifier Definitions included in this report. The reported results are accurate within the limits of the method(s) and are representative only of the samples as received by the laboratory.

Analyses Included in this report:	Method Used:	Accreditations:
Physical Properties (PHYSP)		
Physical Properties	EPA 200.2 (Soil)	ISO
Total Metals (TMTL)		
Total Metals	EPA 200.8 (Soil)	ISO
Total Metals	EPA 6010 (Soil)	ISO



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cc: Nardina Turner



Region 4 Science and Ecosystem Support Division 980 College Station Road, Athens, Georgia 30605-2700 D.A.R.T. Id: 19-0198

Project: 19-0198, Elm Street Lead - Reported by Jeffrey Hendel

# SAMPLES INCLUDED IN THIS REPORT

# Project: 19-0198, Elm Street Lead

Sample ID	Laboratory ID	Matrix	<b>Date Collected</b>	<b>Date Received</b>
ESL-1013B-032219	E191407-01	Surface Soil	3/22/19 10:55	4/5/19 10:35
ESL-1013C-032219	E191407-02	Surface Soil	3/22/19 11:20	4/5/19 10:35
ESL-1044B-032219	E191407-03	Surface Soil	3/22/19 14:00	4/5/19 10:35
ESL-1044C-032219	E191407-04	Surface Soil	3/22/19 14:25	4/5/19 10:35
ESL-1044o-032219	E191407-05	Surface Soil	3/22/19 14:30	4/5/19 10:35
ESL-1047A-032219	E191407-06	Surface Soil	3/22/19 09:45	4/5/19 10:35
ESL-1047o-032219	E191407-07	Surface Soil	3/22/19 10:15	4/5/19 10:35
ESL-1055B-032219	E191407-08	Surface Soil	3/22/19 12:45	4/5/19 10:35
ESL-1055C-032219	E191407-09	Surface Soil	3/22/19 13:15	4/5/19 10:35
ESL-1055G-032219	E191407-10	Surface Soil	3/22/19 13:45	4/5/19 10:35



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### DATA QUALIFIER DEFINITIONS

U The analyte was not detected at or above the reporting limit.

J The identification of the analyte is acceptable; the reported value is an estimate.

OM-1 Matrix Spike Recovery less than method control limits

#### ACRONYMS AND ABBREVIATIONS

#### CAS Chemical Abstracts Service

Note: Analytes with no known CAS identifiers have been assigned codes beginning with "E", the EPA ID as assigned by the EPA Substance Registry System (www.epa.gov/srs), or beginning with "R4-", a unique identifier assigned by the EPA Region 4 laboratory.

- MDL Method Detection Limit The minimum concentration of a substance (an analyte) that can be measured and reported with a 99% confidence that the analyte concentration is greater than zero.
- MRL Minimum Reporting Limit Analyte concentration that corresponds to the lowest demonstrated level of acceptable quantitation. The MRL is sample-specific and accounts for preparation weights and volumes, dilutions, and moisture content of soil/sediments.
- TIC Tentatively Identified Compound An analyte identified based on a match with the instrument software's mass spectral library. A calibration standard has not been analyzed to confirm the compound's identification or the estimated concentration reported.

#### **ACCREDITATIONS:**

ISO ASB is accredited by ISO/IEC 17025, including an amplification for forensic accreditation through ANSI-ASQ National Accreditation Board.

Refer to the certificate and scope of accreditation AT-1644 at: http://www.epa.gov/aboutepa/about-region-4s-science-and-ecosystem-support-division-sesd

NR The EPA Region 4 Laboratory has not requested accreditation for this test.



Region 4 Science and Ecosystem Support Division 980 College Station Road, Athens, Georgia 30605-2700 D.A.R.T. Id: 19-0198

Project: 19-0198, Elm Street Lead - Reported by Jeffrey Hendel

# **Total Metals**

Project: 19-0198, Elm Street Lead

Sample ID: ESL-1013B-032219 Lab ID: E191407-01
Station ID: ESL1013B Matrix: Surface Soil

CAS Number	Analyte	Results Qualific	ers Units	MRL	Prepared	Analyzed	Method
7440-36-0	Antimony	1.3 J, QM-1	mg/kg dry	0.20	4/12/19 13:20	4/19/19 13:56	EPA 200.8
7440-38-2	Arsenic	4.0	mg/kg dry	0.20	4/12/19 13:20	4/19/19 13:56	EPA 200.8
7440-39-3	Barium	260	mg/kg dry	1.5	4/12/19 13:18	4/16/19 14:49	EPA 6010
7440-43-9	Cadmium	1.3	mg/kg dry	0.10	4/12/19 13:20	4/19/19 13:56	EPA 200.8
7440-47-3	Chromium	27	mg/kg dry	1.5	4/12/19 13:18	4/16/19 14:49	EPA 6010
7439-92-1	Lead	560	mg/kg dry	5.0	4/12/19 13:20	4/19/19 12:37	EPA 200.8
7439-97-6	Mercury	0.25	mg/kg dry	0.080	4/12/19 13:20	4/19/19 13:56	EPA 200.8
7782-49-2	Selenium	0.40 <mark>U</mark>	mg/kg dry	0.40	4/12/19 13:20	4/19/19 13:56	EPA 200.8
7440-22-4	Silver	1.5 <b>U</b>	mg/kg dry	1.5	4/12/19 13:18	4/16/19 14:49	EPA 6010
7440-28-0	Thallium	0.46	mg/kg dry	0.20	4/12/19 13:20	4/19/19 13:56	EPA 200.8



Region 4 Science and Ecosystem Support Division 980 College Station Road, Athens, Georgia 30605-2700 D.A.R.T. Id: 19-0198

Project: 19-0198, Elm Street Lead - Reported by Jeffrey Hendel

# **Physical Properties**

Project: 19-0198, Elm Street Lead

Sample ID: ESL-1013B-032219 Lab ID: E191407-01
Station ID: ESL1013B Matrix: Surface Soil

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
E1642941	% Solids	97		%	0.0	4/10/19 14:35	4/11/19 15:30	EPA 200.2



Region 4 Science and Ecosystem Support Division 980 College Station Road, Athens, Georgia 30605-2700 D.A.R.T. Id: 19-0198

Project: 19-0198, Elm Street Lead - Reported by Jeffrey Hendel

# **Total Metals**

Project: 19-0198, Elm Street Lead

Sample ID: ESL-1013C-032219 Lab ID: E191407-02
Station ID: ESL1013C Matrix: Surface Soil

 .ted. 5/22/15 11:20							
Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
Antimony	1.1		mg/kg dry	0.20	4/12/19 13:20	4/19/19 14:20	EPA 200.8
Arsenic	5.5		mg/kg dry	0.20	4/12/19 13:20	4/19/19 14:20	EPA 200.8
Barium	460		mg/kg dry	2.5	4/12/19 13:18	4/16/19 14:58	EPA 6010
Cadmium	3.0		mg/kg dry	0.098	4/12/19 13:20	4/19/19 14:20	EPA 200.8
Chromium	34		mg/kg dry	2.5	4/12/19 13:18	4/16/19 14:58	EPA 6010
Lead	690		mg/kg dry	4.9	4/12/19 13:20	4/19/19 12:52	EPA 200.8
Mercury	3.0		mg/kg dry	2.0	4/12/19 13:20	4/19/19 12:52	EPA 200.8
Selenium	0.50		mg/kg dry	0.39	4/12/19 13:20	4/19/19 14:20	EPA 200.8
Silver	2.5	U	mg/kg dry	2.5	4/12/19 13:18	4/16/19 14:58	EPA 6010
Thallium	0.48		mg/kg dry	0.20	4/12/19 13:20	4/19/19 14:20	EPA 200.8
Chromium Lead Mercury Selenium Silver	34 690 3.0 0.50 2.5	U	mg/kg dry mg/kg dry mg/kg dry mg/kg dry mg/kg dry	2.5 4.9 2.0 0.39 2.5	4 4 4	13:20 4/12/19 13:18 4/12/19 13:20 4/12/19 13:20 4/12/19 13:20 4/12/19 13:18 4/12/19	13:20 14:20 4/12/19 4/16/19 13:18 14:58 4/12/19 4/19/19 13:20 12:52 4/12/19 4/19/19 13:20 12:52 4/12/19 4/19/19 13:20 14:20 4/12/19 4/16/19 13:18 14:58



Region 4 Science and Ecosystem Support Division 980 College Station Road, Athens, Georgia 30605-2700 D.A.R.T. Id: 19-0198

Project: 19-0198, Elm Street Lead - Reported by Jeffrey Hendel

# **Physical Properties**

Project: 19-0198, Elm Street Lead

Sample ID: ESL-1013C-032219 Lab ID: E191407-02
Station ID: ESL1013C Matrix: Surface Soil

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
E1642941	% Solids	88		%	0.0	4/10/19 14:35	4/11/19 15:30	EPA 200.2



Region 4 Science and Ecosystem Support Division 980 College Station Road, Athens, Georgia 30605-2700 D.A.R.T. Id: 19-0198

Project: 19-0198, Elm Street Lead - Reported by Jeffrey Hendel

# **Total Metals**

Project: 19-0198, Elm Street Lead

Sample ID: ESL-1044B-032219 Lab ID: E191407-03
Station ID: ESL1044B Matrix: Surface Soil

	rected: 5/22/17 14:00						
CAS Number	Analyte	Results	Qualifiers Units	MRL	Prepared	Analyzed	Method
7440-36-0	Antimony	0.24	mg/kg dry	0.20	4/12/19 13:20	4/19/19 14:25	EPA 200.8
7440-38-2	Arsenic	3.0	mg/kg dry	0.20	4/12/19 13:20	4/19/19 14:25	EPA 200.8
7440-39-3	Barium	120	mg/kg dry	0.99	4/12/19 13:18	4/16/19 15:01	EPA 6010
7440-43-9	Cadmium	0.22	mg/kg dry	0.099	4/12/19 13:20	4/19/19 14:25	EPA 200.8
7440-47-3	Chromium	18	mg/kg dry	0.99	4/12/19 13:18	4/16/19 15:01	EPA 6010
7439-92-1	Lead	62	mg/kg dry	0.99	4/12/19 13:20	4/19/19 12:57	EPA 200.8
7439-97-6	Mercury	0.095	mg/kg dry	0.079	4/12/19 13:20	4/19/19 14:25	EPA 200.8
7782-49-2	Selenium	0.40 U	J mg/kg dry	0.40	4/12/19 13:20	4/19/19 14:25	EPA 200.8
7440-22-4	Silver	0.99 U	J mg/kg dry	0.99	4/12/19 13:18	4/16/19 15:01	EPA 6010
7440-28-0	Thallium	0.29	mg/kg dry	0.20	4/12/19 13:20	4/19/19 14:25	EPA 200.8



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Project: 19-0198, Elm Street Lead - Reported by Jeffrey Hendel

# **Physical Properties**

Project: 19-0198, Elm Street Lead

Sample ID: ESL-1044B-032219 Lab ID: E191407-03
Station ID: ESL1044B Matrix: Surface Soil

CAS Number	Analyte	Results	Qualifiers Units	MRL	Prepared	Analyzed	Method
E1642941	% Solids	95	%	0.0	4/10/19 14:35	4/11/19 15:30	EPA 200.2



Region 4 Science and Ecosystem Support Division 980 College Station Road, Athens, Georgia 30605-2700 D.A.R.T. Id: 19-0198

Project: 19-0198, Elm Street Lead - Reported by Jeffrey Hendel

# **Total Metals**

Project: 19-0198, Elm Street Lead

Sample ID: ESL-1044C-032219 Lab ID: E191407-04
Station ID: ESL1044C Matrix: Surface Soil

1 (MA) - COLORS NO TO COLOR						
Analyte	Results	Qualifiers Units	MRL	Prepared	Analyzed	Method
Antimony	0.80	mg/kg dry	0.20	4/12/19 13:20	4/19/19 14:30	EPA 200.8
Arsenic	3.1	mg/kg dry	0.20	4/12/19 13:20	4/19/19 14:30	EPA 200.8
Barium	230	mg/kg dry	1.5	4/12/19 13:18	4/16/19 15:07	EPA 6010
Cadmium	1.3	mg/kg dry	0.099	4/12/19 13:20	4/19/19 14:30	EPA 200.8
Chromium	18	mg/kg dry	1.5	4/12/19 13:18	4/16/19 15:07	EPA 6010
Lead	310	mg/kg dry	4.9	4/12/19 13:20	4/19/19 13:12	EPA 200.8
Mercury	0.36	mg/kg dry	0.079	4/12/19 13:20	4/19/19 14:30	EPA 200.8
Selenium	0.40	U mg/kg dry	0.40	4/12/19 13:20	4/19/19 14:30	EPA 200.8
Silver	1.5	U mg/kg dry	1.5	4/12/19 13:18	4/16/19 15:07	EPA 6010
Thallium	0.30	mg/kg dry	0.20	4/12/19 13:20	4/19/19 14:30	EPA 200.8
	Antimony Arsenic Barium Cadmium Chromium Lead Mercury Selenium Silver	Antimony         0.80           Arsenic         3.1           Barium         230           Cadmium         1.3           Chromium         18           Lead         310           Mercury         0.36           Selenium         0.40           Silver         1.5	Antimony         0.80         mg/kg dry           Arsenic         3.1         mg/kg dry           Barium         230         mg/kg dry           Cadmium         1.3         mg/kg dry           Chromium         18         mg/kg dry           Lead         310         mg/kg dry           Mercury         0.36         mg/kg dry           Selenium         0.40 U         mg/kg dry           Silver         1.5 U         mg/kg dry	Antimony         0.80         mg/kg dry         0.20           Arsenic         3.1         mg/kg dry         0.20           Barium         230         mg/kg dry         1.5           Cadmium         1.3         mg/kg dry         0.099           Chromium         18         mg/kg dry         1.5           Lead         310         mg/kg dry         4.9           Mercury         0.36         mg/kg dry         0.079           Selenium         0.40 U         mg/kg dry         0.40           Silver         1.5 U         mg/kg dry         1.5	Antimony       0.80       mg/kg dry       0.20       4/12/19 13:20         Arsenic       3.1       mg/kg dry       0.20       4/12/19 13:20         Barium       230       mg/kg dry       1.5       4/12/19 13:18         Cadmium       1.3       mg/kg dry       0.099       4/12/19 13:20         Chromium       18       mg/kg dry       1.5       4/12/19 13:18         Lead       310       mg/kg dry       4.9       4/12/19 13:20         Mercury       0.36       mg/kg dry       0.079       4/12/19 13:20         Selenium       0.40 U       mg/kg dry       0.40       4/12/19 13:20         Silver       1.5 U       mg/kg dry       1.5       4/12/19 13:18         Thellium       0.20       mg/kg dry       0.20       4/12/19	Antimony         0.80         mg/kg dry         0.20         4/12/19   13:20   14:30   14:30           Arsenic         3.1         mg/kg dry         0.20         4/12/19   4/19/19   4/19/19           Barium         230         mg/kg dry         1.5         13:18   15:07           Cadmium         1.3         mg/kg dry         0.099   4/12/19   4/19/19         4/19/19           Chromium         18         mg/kg dry         1.5         13:18   15:07           Lead         310         mg/kg dry         4.9         4/12/19   4/19/19   4/19/19           Mercury         0.36         mg/kg dry         0.079   4/12/19   4/19/19         4/19/19   4/19/19           Selenium         0.40 U         mg/kg dry         0.40   4/12/19   4/19/19         4/16/19   4/16/19           Silver         1.5 U         mg/kg dry         1.5   4/12/19   4/16/19   4/16/19         4/16/19   4/16/19           Thellium         0.20         mg/kg dry         1.5   4/12/19   4/19/19         4/19/19



Region 4 Science and Ecosystem Support Division 980 College Station Road, Athens, Georgia 30605-2700 D.A.R.T. Id: 19-0198

Project: 19-0198, Elm Street Lead - Reported by Jeffrey Hendel

# **Physical Properties**

Project: 19-0198, Elm Street Lead

Sample ID: <u>ESL-1044C-032219</u>

Station ID: <u>ESL1044C</u>

Matrix: Surface Soil

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
E1642941	% Solids	91		%	0.0	4/10/19 14:35	4/11/19 15:30	EPA 200.2



Region 4 Science and Ecosystem Support Division 980 College Station Road, Athens, Georgia 30605-2700 D.A.R.T. Id: 19-0198

Project: 19-0198, Elm Street Lead - Reported by Jeffrey Hendel

# **Total Metals**

Project: 19-0198, Elm Street Lead

Sample ID: ESL-10440-032219 Lab ID: E191407-05
Station ID: ESL10440 Matrix: Surface Soil

2	Heeteu. 5/22/15 14.50						
CAS Number	Analyte	Results Qualifiers	Units	MRL	Prepared	Analyzed	Method
7440-36-0	Antimony	1.7	mg/kg dry	0.20	4/12/19 13:20	4/19/19 14:35	EPA 200.8
7440-38-2	Arsenic	5.2	mg/kg dry	0.20	4/12/19 13:20	4/19/19 14:35	EPA 200.8
7440-39-3	Barium	300	mg/kg dry	1.5	4/12/19 13:18	4/16/19 15:10	EPA 6010
7440-43-9	Cadmium	3.5	mg/kg dry	0.098	4/12/19 13:20	4/19/19 14:35	EPA 200.8
7440-47-3	Chromium	23	mg/kg dry	1.5	4/12/19 13:18	4/16/19 15:10	EPA 6010
7439-92-1	Lead	540	mg/kg dry	4.9	4/12/19 13:20	4/19/19 13:16	EPA 200.8
7439-97-6	Mercury	0.39	mg/kg dry	0.079	4/12/19 13:20	4/19/19 14:35	EPA 200.8
7782-49-2	Selenium	0.43	mg/kg dry	0.39	4/12/19 13:20	4/19/19 14:35	EPA 200.8
7440-22-4	Silver	1.5 U	mg/kg dry	1.5	4/12/19 13:18	4/16/19 15:10	EPA 6010
7440-28-0	Thallium	0.34	mg/kg dry	0.20	4/12/19 13:20	4/19/19 14:35	EPA 200.8



Region 4 Science and Ecosystem Support Division 980 College Station Road, Athens, Georgia 30605-2700 D.A.R.T. Id: 19-0198

Project: 19-0198, Elm Street Lead - Reported by Jeffrey Hendel

# **Physical Properties**

Project: 19-0198, Elm Street Lead

Sample ID: ESL-10440-032219 Lab ID: E191407-05
Station ID: ESL10440 Matrix: Surface Soil

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
E1642941	% Solids	92		%	0.0	4/10/19 14:35	4/11/19 15:30	EPA 200.2



Region 4 Science and Ecosystem Support Division 980 College Station Road, Athens, Georgia 30605-2700 D.A.R.T. Id: 19-0198

Project: 19-0198, Elm Street Lead - Reported by Jeffrey Hendel

# **Total Metals**

Project: 19-0198, Elm Street Lead

Sample ID: ESL-1047A-032219 Lab ID: E191407-06
Station ID: ESL1047A Matrix: Surface Soil

Dispression of the	nected: 3/22/19 9:45						
CAS Number	Analyte	Results	Qualifiers Units	MRL	Prepared	Analyzed	Method
7440-36-0	Antimony	1.6	mg/kg dry	0.20	4/12/19 13:20	4/19/19 14:50	EPA 200.8
7440-38-2	Arsenic	5.3	mg/kg dry	0.20	4/12/19 13:20	4/19/19 14:50	EPA 200.8
7440-39-3	Barium	310	mg/kg dry	2.5	4/12/19 13:18	4/16/19 15:13	EPA 6010
7440-43-9	Cadmium	1.4	mg/kg dry	0.099	4/12/19 13:20	4/19/19 14:50	EPA 200.8
7440-47-3	Chromium	33	mg/kg dry	2.5	4/12/19 13:18	4/16/19 15:13	EPA 6010
7439-92-1	Lead	680	mg/kg dry	5.0	4/12/19 13:20	4/19/19 13:21	EPA 200.8
7439-97-6	Mercury	0.45	mg/kg dry	0.079	4/12/19 13:20	4/19/19 14:50	EPA 200.8
7782-49-2	Selenium	0.43	mg/kg dry	0.40	4/12/19 13:20	4/19/19 14:50	EPA 200.8
7440-22-4	Silver	2.5	U mg/kg dry	2.5	4/12/19 13:18	4/16/19 15:13	EPA 6010
7440-28-0	Thallium	0.44	mg/kg dry	0.20	4/12/19 13:20	4/19/19 14:50	EPA 200.8



Region 4 Science and Ecosystem Support Division 980 College Station Road, Athens, Georgia 30605-2700 D.A.R.T. Id: 19-0198

Project: 19-0198, Elm Street Lead - Reported by Jeffrey Hendel

# **Physical Properties**

Project: 19-0198, Elm Street Lead

Sample ID: ESL-1047A-032219 Lab ID: E191407-06
Station ID: ESL1047A Matrix: Surface Soil

CAS Number	Analyte	Results	Qualifiers Units	MRL	Prepared	Analyzed	Method
E1642941	% Solids	93	%	0.0	4/10/19 14:35	4/11/19 15:30	EPA 200.2



Region 4 Science and Ecosystem Support Division 980 College Station Road, Athens, Georgia 30605-2700 D.A.R.T. Id: 19-0198

Project: 19-0198, Elm Street Lead - Reported by Jeffrey Hendel

# **Total Metals**

Project: 19-0198, Elm Street Lead

Sample ID: ESL-10470-032219 Lab ID: E191407-07
Station ID: ESL1047O Matrix: Surface Soil

CAS Number	Analyte	Results Qualifiers	Units	MRL	Prepared	Analyzed	Method
7440-36-0	Antimony	0.20 U	mg/kg dry	0.20	4/12/19 13:20	4/19/19 14:55	EPA 200.8
7440-38-2	Arsenic	0.92	mg/kg dry	0.20	4/12/19 13:20	4/19/19 14:55	EPA 200.8
7440-39-3	Barium	150	mg/kg dry	1.5	4/12/19 13:18	4/16/19 15:16	EPA 6010
7440-43-9	Cadmium	0.30	mg/kg dry	0.10	4/12/19 13:20	4/19/19 14:55	EPA 200.8
7440-47-3	Chromium	20	mg/kg dry	1.5	4/12/19 13:18	4/16/19 15:16	EPA 6010
7439-92-1	Lead	100	mg/kg dry	1.0	4/12/19 13:20	4/19/19 13:26	EPA 200.8
7439-97-6	Mercury	0.12	mg/kg dry	0.080	4/12/19 13:20	4/19/19 14:55	EPA 200.8
7782-49-2	Selenium	0.40 U	mg/kg dry	0.40	4/12/19 13:20	4/19/19 14:55	EPA 200.8
7440-22-4	Silver	1.5 U	mg/kg dry	1.5	4/12/19 13:18	4/16/19 15:16	EPA 6010
7440-28-0	Thallium	0.40	mg/kg dry	0.20	4/12/19 13:20	4/19/19 14:55	EPA 200.8



Region 4 Science and Ecosystem Support Division 980 College Station Road, Athens, Georgia 30605-2700 D.A.R.T. Id: 19-0198

Project: 19-0198, Elm Street Lead - Reported by Jeffrey Hendel

# **Physical Properties**

Project: 19-0198, Elm Street Lead

Sample ID: ESL-10470-032219 Lab ID: E191407-07
Station ID: ESL1047O Matrix: Surface Soil

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
E1642941	% Solids	96		%	0.0	4/10/19 14:35	4/11/19 15:30	EPA 200.2



Region 4 Science and Ecosystem Support Division 980 College Station Road, Athens, Georgia 30605-2700 D.A.R.T. Id: 19-0198

Project: 19-0198, Elm Street Lead - Reported by Jeffrey Hendel

# **Total Metals**

Project: 19-0198, Elm Street Lead

Sample ID: ESL-1055B-032219 Lab ID: E191407-08
Station ID: ESL1055B Matrix: Surface Soil

Date Co.	neeteu: 5/22/17 12:43						
CAS Number	Analyte	Results Qualifiers	Units	MRL	Prepared	Analyzed	Method
7440-36-0	Antimony	1.8	mg/kg dry	0.20	4/12/19 13:20	4/19/19 14:59	EPA 200.8
7440-38-2	Arsenic	6.9	mg/kg dry	0.20	4/12/19 13:20	4/19/19 14:59	EPA 200.8
7440-39-3	Barium	350	mg/kg dry	1.5	4/12/19 13:18	4/16/19 15:19	EPA 6010
7440-43-9	Cadmium	1.5	mg/kg dry	0.099	4/12/19 13:20	4/19/19 14:59	EPA 200.8
7440-47-3	Chromium	28	mg/kg dry	1.5	4/12/19 13:18	4/16/19 15:19	EPA 6010
7439-92-1	Lead	610	mg/kg dry	4.9	4/12/19 13:20	4/19/19 13:31	EPA 200.8
7439-97-6	Mercury	0.31	mg/kg dry	0.079	4/12/19 13:20	4/19/19 14:59	EPA 200.8
7782-49-2	Selenium	0.39 U	mg/kg dry	0.39	4/12/19 13:20	4/19/19 14:59	EPA 200.8
7440-22-4	Silver	1.5 U	mg/kg dry	1.5	4/12/19 13:18	4/16/19 15:19	EPA 6010
7440-28-0	Thallium	0.31	mg/kg dry	0.20	4/12/19 13:20	4/19/19 14:59	EPA 200.8



Region 4 Science and Ecosystem Support Division 980 College Station Road, Athens, Georgia 30605-2700 D.A.R.T. Id: 19-0198

Project: 19-0198, Elm Street Lead - Reported by Jeffrey Hendel

# **Physical Properties**

Project: 19-0198, Elm Street Lead

Sample ID: ESL-1055B-032219 Lab ID: E191407-08
Station ID: ESL1055B Matrix: Surface Soil

CAS Number	Analyte	Results Qualifiers	Units	MRL	Prepared	Analyzed	Method
E1642941	% Solids	93	%	0.0	4/10/19 14:35	4/11/19 15:30	EPA 200.2



Region 4 Science and Ecosystem Support Division 980 College Station Road, Athens, Georgia 30605-2700 D.A.R.T. Id: 19-0198

Project: 19-0198, Elm Street Lead - Reported by Jeffrey Hendel

# **Total Metals**

Project: 19-0198, Elm Street Lead

Sample ID: ESL-1055C-032219 Lab ID: E191407-09
Station ID: ESL1055C Matrix: Surface Soil

Dute Co	neeted: 5/22/17 13:13						
CAS Number	Analyte	Results Qualifiers	Units	MRL	Prepared	Analyzed	Method
7440-36-0	Antimony	0.63	mg/kg dry	0.20	4/12/19 13:20	4/19/19 15:04	EPA 200.8
7440-38-2	Arsenic	4.3	mg/kg dry	0.20	4/12/19 13:20	4/19/19 15:04	EPA 200.8
7440-39-3	Barium	350	mg/kg dry	1.5	4/12/19 13:18	4/16/19 15:22	EPA 6010
7440-43-9	Cadmium	1.3	mg/kg dry	0.10	4/12/19 13:20	4/19/19 15:04	EPA 200.8
7440-47-3	Chromium	29	mg/kg dry	1.5	4/12/19 13:18	4/16/19 15:22	EPA 6010
7439-92-1	Lead	400	mg/kg dry	5.0	4/12/19 13:20	4/19/19 13:36	EPA 200.8
7439-97-6	Mercury	0.32	mg/kg dry	0.080	4/12/19 13:20	4/19/19 15:04	EPA 200.8
7782-49-2	Selenium	0.40 U	mg/kg dry	0.40	4/12/19 13:20	4/19/19 15:04	EPA 200.8
7440-22-4	Silver	1.5 U	mg/kg dry	1.5	4/12/19 13:18	4/16/19 15:22	EPA 6010
7440-28-0	Thallium	0.45	mg/kg dry	0.20	4/12/19 13:20	4/19/19 15:04	EPA 200.8
7440-22-4					13:18 4/12/19		



Region 4 Science and Ecosystem Support Division 980 College Station Road, Athens, Georgia 30605-2700 D.A.R.T. Id: 19-0198

Project: 19-0198, Elm Street Lead - Reported by Jeffrey Hendel

# **Physical Properties**

Project: 19-0198, Elm Street Lead

Sample ID: ESL-1055C-032219 Lab ID: E191407-09
Station ID: ESL1055C Matrix: Surface Soil

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
E1642941	% Solids	89		%	0.0	4/10/19 14:35	4/11/19 15:30	EPA 200.2



Region 4 Science and Ecosystem Support Division 980 College Station Road, Athens, Georgia 30605-2700 D.A.R.T. Id: 19-0198

Project: 19-0198, Elm Street Lead - Reported by Jeffrey Hendel

# **Total Metals**

Project: 19-0198, Elm Street Lead

Sample ID: ESL-1055G-032219 Lab ID: E191407-10
Station ID: ESL1055G Matrix: Surface Soil

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Analyte	Results	Qualifiers Units	MRL	Prepared	Analyzed	Method
Antimony	1.0	mg/kg dry	0.20	4/12/19 13:20	4/19/19 15:09	EPA 200.8
Arsenic	7.8	mg/kg dry	0.20	4/12/19 13:20	4/19/19 15:09	EPA 200.8
Barium	410	mg/kg dry	1.5	4/12/19 13:18	4/16/19 15:25	EPA 6010
Cadmium	1.9	mg/kg dry	0.099	4/12/19 13:20	4/19/19 15:09	EPA 200.8
Chromium	32	mg/kg dry	1.5	4/12/19 13:18	4/16/19 15:25	EPA 6010
Lead	520	mg/kg dry	5.0	4/12/19 13:20	4/19/19 13:41	EPA 200.8
Mercury	0.28	mg/kg dry	0.079	4/12/19 13:20	4/19/19 15:09	EPA 200.8
Selenium	0.56	mg/kg dry	0.40	4/12/19 13:20	4/19/19 15:09	EPA 200.8
Silver	3.0	mg/kg dry	1.5	4/12/19 13:18	4/16/19 15:25	EPA 6010
Thallium	0.42	mg/kg dry	0.20	4/12/19 13:20	4/19/19 15:09	EPA 200.8
	Antimony Arsenic Barium Cadmium Chromium Lead Mercury Selenium Silver	Antimony       1.0         Arsenic       7.8         Barium       410         Cadmium       1.9         Chromium       32         Lead       520         Mercury       0.28         Selenium       0.56         Silver       3.0	Antimony         1.0         mg/kg dry           Arsenic         7.8         mg/kg dry           Barium         410         mg/kg dry           Cadmium         1.9         mg/kg dry           Chromium         32         mg/kg dry           Lead         520         mg/kg dry           Mercury         0.28         mg/kg dry           Selenium         0.56         mg/kg dry           Silver         3.0         mg/kg dry	Antimony         1.0         mg/kg dry         0.20           Arsenic         7.8         mg/kg dry         0.20           Barium         410         mg/kg dry         1.5           Cadmium         1.9         mg/kg dry         0.099           Chromium         32         mg/kg dry         1.5           Lead         520         mg/kg dry         5.0           Mercury         0.28         mg/kg dry         0.079           Selenium         0.56         mg/kg dry         0.40           Silver         3.0         mg/kg dry         1.5	Antimony       1.0       mg/kg dry       0.20       4/12/19 13:20         Arsenic       7.8       mg/kg dry       0.20       4/12/19 13:20         Barium       410       mg/kg dry       1.5       4/12/19 13:18         Cadmium       1.9       mg/kg dry       0.099       4/12/19 13:20         Chromium       32       mg/kg dry       1.5       4/12/19 13:18         Lead       520       mg/kg dry       5.0       4/12/19 13:20         Mercury       0.28       mg/kg dry       0.079       4/12/19 13:20         Selenium       0.56       mg/kg dry       0.40       4/12/19 13:20         Silver       3.0       mg/kg dry       1.5       4/12/19 13:18         Thellium       0.42       mg/kg dry       0.20       4/12/19	Antimony         1.0         mg/kg dry         0.20         4/12/19   15:09



Region 4 Science and Ecosystem Support Division 980 College Station Road, Athens, Georgia 30605-2700 D.A.R.T. Id: 19-0198

Project: 19-0198, Elm Street Lead - Reported by Jeffrey Hendel

# **Physical Properties**

Project: 19-0198, Elm Street Lead

Sample ID: ESL-1055G-032219 Lab ID: E191407-10
Station ID: ESL1055G Matrix: Surface Soil

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
E1642941	% Solids	89		%	0.0	4/10/19 14:35	4/11/19 15:30	EPA 200.2



Region 4 Science and Ecosystem Support Division 980 College Station Road, Athens, Georgia 30605-2700 D.A.R.T. Id: 19-0198

Project: 19-0198, Elm Street Lead - Reported by Jeffrey Hendel

# Total Metals (TMTL) - Quality Control US-EPA, Region 4, SESD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1904036 - M 200.2 Metals Soil										
Blank (1904036-BLK1)				Prepared: (	04/12/19 An	alyzed: 04	/16/19			
EPA 6010										
Barium	U	0.50	mg/kg dry							U
Chromium	U	0.50	"							U
Silver	U	0.50	"							U
Blank (1904036-BLK2)				Prepared: (	04/12/19 An	alyzed: 04	/16/19			
EPA 6010				_						
Barium	U	0.50	mg/kg dry							U
Chromium	U	0.50								U
Silver	U	0.50	n							U
LCS (1904036-BS1)				Prepared: (	04/12/19 An	alyzed: 04	/16/19			
EPA 6010										
Barium	49.043	0.50	mg/kg dry	50.000		98.1	85-115			
Chromium	48.076	0.50	"	50.000		96.2	85-115			
Silver	9.1723	0.50	n	10.000		91.7	85-115			
Matrix Spike (1904036-MS1)	Sou	rce: E191407	-01	Prepared: (	04/12/19 An	alyzed: 04	/16/19			
EPA 6010										
Barium	301.08	1.5	mg/kg dry	49.623	260.65	81.5	75-125			
Chromium	73.250	1.5	n.	49.623	26.731	93.7	75-125			
Silver	9.4288	1.5	78	9.9246	0.37595	91.2	75-125			
Matrix Spike Dup (1904036-MSD1)	Sou	rce: E191407	-01	Prepared: (	04/12/19 An	alyzed: 04	/16/19			
EPA 6010										
Barium	312.52	1.5	mg/kg dry	49.761	260.65	104	75-125	3.73	20	
Chromium	74.440	1.5	"	49.761	26.731	95.9	75-125	1.61	20	
Silver	9.9909	1.5	**	9.9522	0.37595	96.6	75-125	5.79	20	
MRL Verification (1904036-PS1)				Prepared: (	04/12/19 An	alyzed: 04	/16/19			
EPA 6010										
Barium	0.51678	0.50	mg/kg dry	0.50000		103	70-130			MRL-3
Chromium	0.50320	0.50	"	0.50000		101	70-130			MRL-3
Silver	0.48657	0.50	.11	0.50000		97.3	70-130			MRL-3, U



Region 4 Science and Ecosystem Support Division 980 College Station Road, Athens, Georgia 30605-2700 D.A.R.T. Id: 19-0198

Project: 19-0198, Elm Street Lead - Reported by Jeffrey Hendel

# Total Metals (TMTL) - Quality Control US-EPA, Region 4, SESD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1904037 - M 200.2 Metals Soil										
Blank (1904037-BLK1)				Prepared: (	04/12/19 An	nalyzed: 04	/19/19			
EPA 200.8										
Antimony	U	0.10	mg/kg dry							U
Arsenic	U	0.10	"							U
Cadmium	U	0.050	"							U
Lead	U	0.10	"							U
Mercury	U	0.040	u.							U
Selenium	U	0.20	31							U
Thallium	U	0.10	"							U
Blank (1904037-BLK2)				Prepared: 0	04/12/19 An	nalyzed: 04	19/19			
EPA 200.8										
Antimony	U	0.10	mg/kg dry							U
Arsenic	U	0.10	"							U
Cadmium	U	0.050	n							U
Lead	U	0.10	"							U
Mercury	U	0.040	"							U
Selenium	U	0.20	"							U
Thallium	U	0.10	<b>***</b>							U
LCS (1904037-BS1)				Prepared: (	04/12/19 An	nalyzed: 04	19/19			
EPA 200.8										
Antimony	97.251	1.2	mg/kg dry	100.00		97.3	85-115			
Arsenic	48.543	1.2	"	50.000		97.1	85-115			
Cadmium	20.015	0.62	n,	20.000		100	85-115			
Lead	100.23	1.2	"	100.00		100	85-115			
Mercury	5.1384	0.50	"	5.0000		103	85-115			
Selenium	97.757	2.5	· ·	100.00		97.8	85-115			
Thallium	20.463	1.2	"	20.000		102	85-115			
Matrix Spike (1904037-MS1)	Sou	rce: E191407	<b>'-01</b>	Prepared: (	04/12/19 An	nalyzed: 04	19/19			
EPA 200.8										
Antimony	31.389	5.0	mg/kg dry	99.246	1.3681	30.2	70-130			QM-1
Arsenic	49.248	5.0	"	49.623	4.0337	91.1	70-130			
Cadmium	20.813	2.5	"	19.849	1.5428	97.1	70-130			
Lead	654.66	5.0		99.246	564.97	90.4	70-130			XM-1
Mercury	5.9323	2.0	"	4.9623	U	120	70-130			
Selenium	73.976	9.9		99.246	U	74.5	70-130			
Thallium	19.943	5.0	n	19.849	0.50338	97.9	70-130			



Region 4 Science and Ecosystem Support Division 980 College Station Road, Athens, Georgia 30605-2700 D.A.R.T. Id: 19-0198

Project: 19-0198, Elm Street Lead - Reported by Jeffrey Hendel

# Total Metals (TMTL) - Quality Control US-EPA, Region 4, SESD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1904037 - M 200.2 Metals Soil		2								
Matrix Spike (1904037-MS2)	Sou	ırce: E191407	-01RE1	Prepared: 0	)4/12/19 Aı	nalvzed: 04	/19/19			
EPA 200.8										
Antimony	32.469	1.2	mg/kg dry	99.246	1.3475	31.4	70-130			QM-1
Arsenic	47.007	1.2	"	49.623	4.0239	86.6	70-130			
Cadmium	20.778	0.62	in .	19.849	1.3373	97.9	70-130			
Lead	619.78	1.2	n	99.246	486.36	134	70-130			QC-4,
Mercury	5.0906	0.50		4.9623	0.25197	97.5	70-130			XM-1
Selenium	75.682	2.5		99.246	U	76.3	70-130			
Thallium	19.077	1.2	"	19.849	0.45906	93.8	70-130			
Matrix Spike Dup (1904037-MSD1)	Sou	ırce: E191407	-01	Prepared: 0	)4/12/19 Aı	nalyzed: 04	/19/19			
EPA 200.8										
Antimony	27.347	5.0	mg/kg dry	99.522	1.3681	26.1	70-130	13.8	20	QM-1
Arsenic	48.470	5.0	"	49.761	4.0337	89.3	70-130	1.59	20	
Cadmium	20.824	2.5	n	19.904	1.5428	96.9	70-130	0.0575	20	
Lead	649.73	5.0	"	99.522	564.97	85.2	70-130	0.755	20	XM-1
Mercury	5.0614	2.0		4.9761	U	102	70-130	15.8	20	
Selenium	76.680	10	n	99.522	U	77.0	70-130	3.59	20	
Thallium	20.337	5.0	"	19.904	0.50338	99.6	70-130	1.96	20	
Matrix Spike Dup (1904037-MSD2)	Sou	ırce: E191407	-01RE1	Prepared: 0	04/12/19 Aı	nalyzed: 04	/19/19			
EPA 200.8										
Antimony	29.314	1.2	mg/kg dry	99.522	1.3475	28.1	70-130	10.2	20	QM-1
Arsenic	48.832	1.2		49.761	4.0239	90.0	70-130	3.81	20	
Cadmium	21.521	0.62	- m	19.904	1.3373	101	70-130	3.51	20	
Lead	613.78	1.2	n	99.522	486.36	128	70-130	0.974	20	QC-4, XM-1
Mercury	5.1572	0.50	n	4.9761	0.25197	98.6	70-130	1.30	20	
Selenium	78.611	2.5		99.522	U	79.0	70-130	3.80	20	
Thallium	19.255	1.2	**	19.904	0.45906	94.4	70-130	0.926	20	
MRL Verification (1904037-PS1)				Prepared: 0	)4/12/19 Aı	nalyzed: 04	/19/19			
EPA 200.8				•		•				
Antimony	0.053221	0.10	mg/kg dry	0.050000		106	65-135			MRL-3, U
Arsenic	0.082178	0.10	ü	0.10000		82.2	65-135			MRL-3,
Cadmium	0.049628	0.050	"	0.050000		99.3	65-135			MRL-3,
Lead	0.099576	0.10	n	0.10000		99.6	65-135			MRL-3, U



Thallium

# UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division 980 College Station Road, Athens, Georgia 30605-2700 D.A.R.T. Id: 19-0198

Project: 19-0198, Elm Street Lead - Reported by Jeffrey Hendel

# Total Metals (TMTL) - Quality Control US-EPA, Region 4, SESD

		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch 1904037 - M 200.2 Metals Soil										
MRL Verification (1904037-PS1)				Prepared: 0	04/12/19 Aı	nalyzed: 04	/19/19			
Mercury	0.082087	0.040	mg/kg dry	0.080000		103	65-135			MRL-3
Selenium	0.14944	0.20	"	0.20000		74.7	65-135			MRL-3,
										U

0.050000

103

65-135

0.10

0.051595

MRL-3,



Region 4 Science and Ecosystem Support Division 980 College Station Road, Athens, Georgia 30605-2700 D.A.R.T. Id: 19-0198

Project: 19-0198, Elm Street Lead - Reported by Jeffrey Hendel

# Physical Properties (PHYSP) - Quality Control US-EPA, Region 4, SESD

	]	Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Batch 1904030 - M % Solids							
<b>Duplicate (1904030-DUP1)</b>	Source	: E191407-1	0	Prepared: 04/10/19 Analyzed: 04/11/19			
EPA 200.2							
% Solids	88.873	0.0	%	89.061	0.211	10	



Region 4 Science and Ecosystem Support Division 980 College Station Road, Athens, Georgia 30605-2700 D.A.R.T. Id: 19-0198

Project: 19-0198, Elm Street Lead - Reported by Jeffrey Hendel

## Notes and Definitions for QC Samples

L	The analyt	e was not detected	l at or above	the reporting limit.
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MRL-3 MRL verification for Soil matrix

QC-4 Result greater than the highest point on the calibration curve

QM-1 Matrix Spike Recovery less than method control limits

XM-1 Sample background/spike ratio higher than method evaluation criteria